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International Specialists in the Environment

PRELIMINARY ASSESSMENT

DATE: December 11, 1987

PREPARED BY: Jeffrey Muller/Ara Mardirosian
Ecology & Environment, Inc.

SITE: Motorola, Inc., Price Road Plant
7402 S. Price Road
Tempe, Arizona 85252
Maricopa County

TDD #: F9-8707-059

EPA ID #: AZT000618512

1. Initial FIT Conclusions and Recommendations for Further Action:

a) Site Description

The Motorola Price Road Plant (Motorola) is located at the corner of Price and Elliot Roads, in the City of Tempe, Arizona (see Figure 1, Site Location Map). The facility is separated into two groups, the Motorola Government Electronics Group (GEG) and the Motorola Bipolar Integrated Circuits Group (BIC), which operate in a semi-autonomous manner (1). The BIC group is located at 7402 South Price Road, and the GEG is located at 2100 East Elliot Road, adjacent to the BIC group (see Figure 2, Facility Map).

Motorola is a ten acre facility that conducts research, and manufactures and assembles electronic components. The process includes metal finishing, etching, cleaning and degreasing (2).

It is unknown how long Motorola has operated at this site.

In the fall of 1980, when the Resource Conservation Recovery Act (RCRA) Part A Permit for the site was prepared, there was only a small BIC operation (1). At the time, all BIC production operations were housed in Building 90 on Price Road., which also housed GEG operations (see Figure 2). In August 1982, GEG moved out of Building 90 completely and took up residence at the Elliot Road address. GEG facilities personnel operated both sites, including hazardous waste operations. In January 1983, BIC took over all facilities operations for the east portion of the site except hazardous waste. Within the past two years, Price Road has withdrawn it's Part A application (2). Motorola is now a RCRA generator, and each group operates independently under generator status, 40 CFR 262 (2,3).

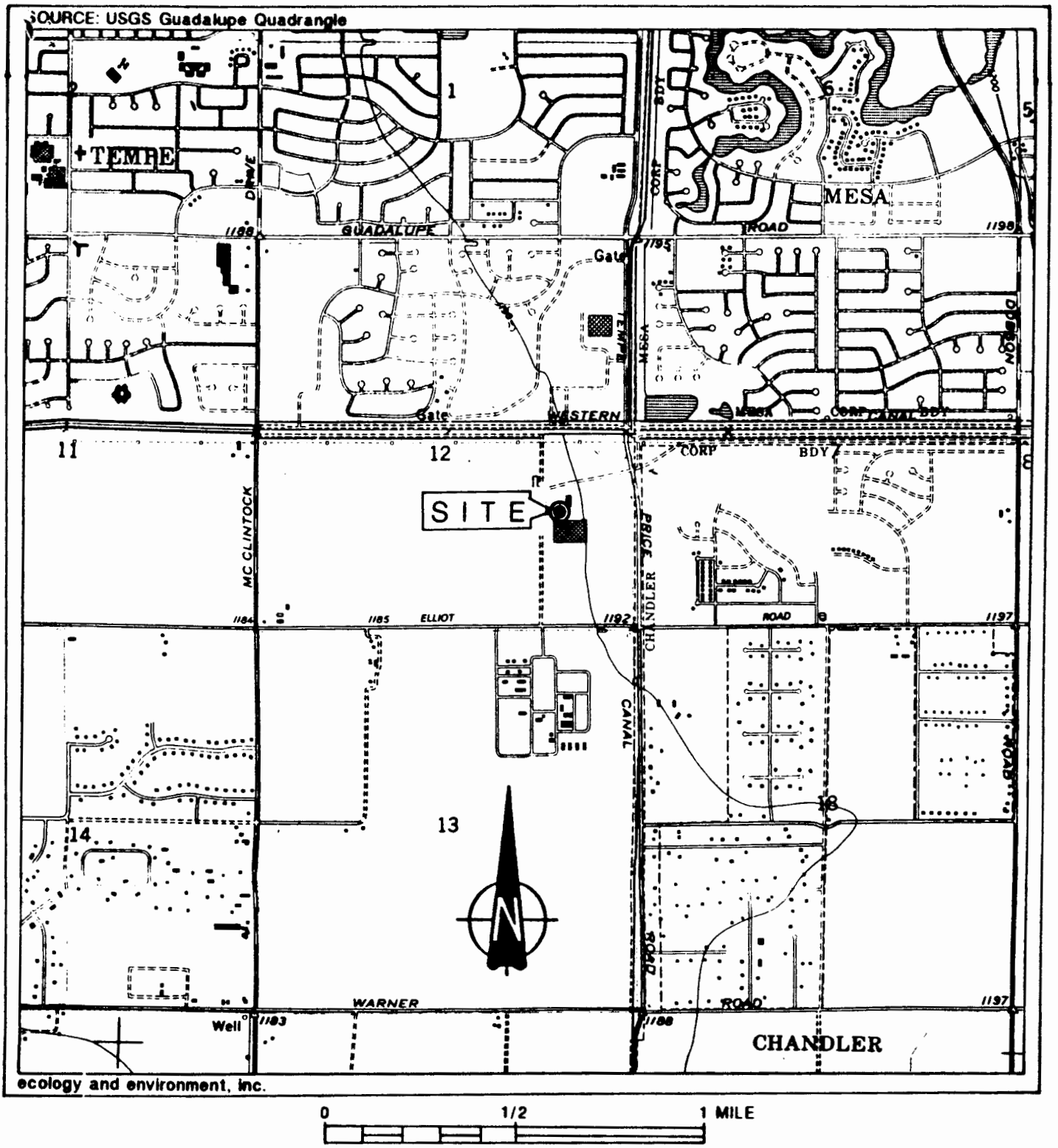

FIGURE 1
SITE LOCATION MAP
MOTOROLA, INC
7402 SOUTH PRICE ROAD
PHOENIX, ARIZONA

Apparent Problem:

On September 14, 1983, it was reported to the Motorola Environmental Department that a decrease had been noticed in the liquid level in the underground waste solvent tank (4). The change in liquid level indicated a possible liquid loss of as much as 200 gallons, however the exact amount is unknown.

On September 15, 1983, a contractor vacuum truck removed the remaining solvent from the tank, and an underground airspace sample was collected to determine if a leak had taken place. Sample analyses indicated high levels of acetone, propanol, and butyl acetate. A liquid sample of the tank contents was taken and the analysis showed a two phase content, with a water rich base on the bottom of the tank (4). The analysis of the bottom layer indicated 18 parts per million (ppm) of acetone, 11 ppm ethyl acetate, and small amounts (exact concentration levels unknown) of propanol, butyl acetate, benzene, and perchloroethylene. Based on the analyses, Motorola believed that the majority of the liquid lost was water (4).

On September 19, 1983, the waste solvent tank was removed from the ground and pressure tested. A pinhole leak was found in the bottom of the tank (4). Approximately 40 cubic yards of soil and a concrete slab were removed from the tank area. This material was hauled in a covered container to a permitted hazardous waste disposal facility, exact facility unknown (4).

Motorola contracted Western Technologies, Inc. of Phoenix, to determine if further contamination remained (4). It is unknown what Western Technologies determined.

On April 4, 1985, a hazardous waste facility inspection was conducted at Motorola, by the Arizona Department of Health Services (ADHS), Office of Waste & Water Quality Management (5). Below is a list of hazardous materials violations that were noted during the inspection.

- Failure to retain a copy of the waste determination documentation for at least three years from the date the waste was last sent for treatment, storage, or disposal.

- Failure to maintain physical and chemical analysis of representative samples of waste managed at the facility. Failure to address all waste types in the waste analysis plan, and failure to provide the frequency with which initial analyses will be reviewed.

- Failure to post signs with a legend, "Danger--Unauthorized Personnel Keep Out" in a sufficient number to be seen from any approach to the active portion of the facility.

- Failure to develop, follow and maintain a written schedule to inspect all monitoring, safety, emergency, security, operating, and structural equipment necessary to prevent, detect, or respond to environmental or human health hazards.

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- Failure to include contingency plan procedures in the personnel training program. Failure to maintain a written description of the type and amount of introductory and continuing training that will be given to each position. Failure to maintain records that document training and job experience have been completed.

- Failure to include all appropriate information required in the contingency plan.

- Failure to submit a copy of the contingency plan to all emergency response agencies identified in the plan.

- Failure to include in the operating log the location of each hazardous waste within the facility, the quantity at each location, and cross-references to specific manifest numbers. Failure to maintain records and results of waste analysis as required.

- Failure to maintain a written closure plan for the facility.

- Failure to prepare a written estimate in current dollars, of the cost of closing the facility in accordance with the required closure plan.

(Source: Ref. 5)

In a letter dated February 24, 1986, it was stated that corrections for the above listed violations had been corrected (6).

On August 4, 1986, another hazardous waste facility inspection was conducted at Motorola (7). During this inspection, the following violations were recorded:

- Failure to make the required hazardous waste determination for all waste generated by the facility.

- failure to follow written inspection schedule and maintain inspection log for at least three years at the facility.

- Failure to maintain personnel training document at the facility.

- Failure to keep hazardous waste containers during storage.

- Failure to operate and maintain the facility such as to minimize hazards, by not having available prompt access to waste storage area on the part of facility personnel.

- Failure to have available immediate access by employees to communication or alarm system.

- Failure to maintain contingency plan at the facility.

- Failure to include appropriate information in the operating record.

- Failure to maintain aisle space to allow unobstructed movement of personnel and equipment.

- Failure to mark all hazardous waste containers with the words "Hazardous Waste" and the accumulation date.

(Source: Ref. 8)

A letter dated October 21, 1986, explains the reasons why the violations occurred and the corrections that were made (9).

HRS Factors:

Observed Release:

There is no known documented releases of any hazardous wastes to air, groundwater, or surface water. As stated in the Apparent Problem section, there was a leak of acetone, propanol, and butyl acetate from an underground storage tank in 1983. The tank was removed, and the contaminated soil was excavated and transported to a hazardous waste disposal facility.

Direct Contact/Fire and Explosion:

There is no known documented reports of direct contact, fire, or explosion incidents. It is unknown what type of fence or wall, if any, surrounds the site.

Waste Type/Quantity:

The hazardous waste generated at this facility are waste mixed solvents and waste Freon (10).

The waste mixed solvent is generated from photo resist developing and numerous cleaning operations. It is collected in five gallon and one gallon containers. The waste in these containers is subsequently emptied into 55 gallon DOT specification 17E drums at the Hazardous Waste Container Storage area. The waste mixed solvent consist of 2-propanol, acetone, and positive photo resist (cellosolve acetate, n-butyl acetate, and xylene). It is unknown what quantity is generated annually.

The waste Freon is generated in degreasing operations. The material is collected and stored in 55 gallon drums. All waste Freon is sent to a reclaimer (exact recycler is unknown). The waste Freon is composed of trichlorotrifluoroethane, and methylene chloride. The amount of waste Freon generated annually is unknown.

Groundwater:

Groundwater, in the vicinity of the Motorola facility, varies from 112 to 700 feet in depth (11).

Separating the upper and lower aquifer is the Middle-Fine Grained Unit. The maximum thickness of this strata has been estimated to be as much as 2000 feet. Though considered an aquiclude, this unit does yield minor amounts of water, under unconfined and semi-confined conditions, from intervals of sand and gravel. However, evaporate minerals make the water too salty for use.

The lower aquifer is referred to as the Lower Conglomerate Unit. Water from this aquifer is produced mainly from wells along the periphery of the Paradise Valley-Chandler-Queen Creek subarea that contains the site. The thickness of the conglomerate ranges from 0-2000 feet. Elevation of the top of this unit range from 1000 feet above sea level to sea level. Groundwater is confined where the Middle Fine-Grained Unit overlies the Lower Conglomerate Unit. Where this does not occur, the upper and lower water bearing units are considered to be one aquifer.

The water quality of the Paradise Valley-Chandler-Queen Creek subarea is generally good with total dissolved solids of less than 1000 ppm occurring over much of the region (11).

There are 113 wells utilized for agricultural, municipal, domestic, and industrial uses within a three mile radius of the Motorola facility (13). Total well depths and perforation depths range from 152 to 1411 feet. Wells are categorized by usage in Table 1:

Table 1

The numbers of wells and their usage within three miles of the Motorola facility:

Use	No. of Wells
Irrigation	45
Domestic	43
Municipal	16
Industrial	9

(Source: Ref. 13)

Two of the municipal wells are owned by the city of Tempe which mixes groundwater from its wells with surface water from the Salt River Project (12). The water is then redistributed to the city of Tempe which has a population of 141,000 residents. The target population is undoubtedly greater than this figure if the population served by the remaining municipal, irrigation, and domestic wells are also taken into consideration.

Net precipitation for the region is -54 inches.

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Surface water:

There are several canals within the area of Motorola:

Canal	Distance From Site	Direction	Gradient
Kyrene	2 miles	west	down
North & South	1.5 miles	west	down
Tempe	400 feet	northwest	
Western	400 feet	north	

All of the canals in this area are used for irrigation purposes only (14).

The one-year 24 hour rainfall is approximately 1.5 inches.

Other Factors:

The site may not be eligible for inclusion on the National Priorities List due to the lack of an observed release of any hazardous substances produced at the site to groundwater and a low potential to release score.

In addition, there is no known evidence documenting an observed release to surface water or air.

c) Conclusions/Recommendations:

The Motorola Price Road Plant is located at the corner of Price Road and Elliot Road in Tempe, Arizona. The Motorola Bipolar Integrated Circuits Group is located at 7402 South Price Road, while the Motorola Governmental Electronics Group is located next door at 2100 East Elliot Road.

Approximately 200 gallons of mixed solvents composed of 2-propanol, acetone, cellulose acetate, n-butyl acetate, and xylene leaked from an underground storage tank. The contents of the tank were removed and an underground air space was tested, The analysis determined the presence of high levels of acetone, propanol, and butyl acetate. The tank was removed and after a pressure test, a pin-hole leak was detected. Approximately 40 cubic yards of soil and concrete were subsequently removed from the tank area. The results of further analysis, conducted by Western Technologies, Inc. to determine if any contaminants remained in the tank excavation area, are unknown.

Safety and compliance violations, observed during ADEQ site inspections in April of 1985 and August of 1986, have been corrected.

FIT recommends no further action under CERCLA due to the lack of an observed release to the groundwater, surface water or air routes, the clean adequate enforcement of the hazardous materials/waste handling regulations by the Arizona Department of Environmental Quality.

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2. FIT Review/Concurrence:

Martha Walters 12/21/87

3. EPA Recommendation for Further Action:

4. Response Termination:

No Further Action _____; Active _____

Justification:

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REFERENCES

1. Letter to Norm Gumenik, Hazardous Waste Specialist, Bureau of Waste Control, ADHS, from Maurice Chiat, Manager, Environmental Bipolar Group, Motorola, Inc., November 7, 1983.

2. ADHS, Bureau of Waste Control, ISS Facility Inspection Report, Motorola, Inc. - Price Road facility, April 4, 1985.

3. Phone conversation with Pak Shem, Arizona Department of Environmental Quality (ADEQ), Waste Compliance Unit, December 10, 1987. See Contact log.

4. Letter to Victoria Brind'Amour, Hazardous Waste Section, Bureau of Waste Control, ADHS, from Maurice Chiat, Environmental Compliance, Motorola Bipolar Group, September 28, 1983.

5. ADHS letter to Mary Janet Ruzicka, Senior Environmental Chemical Engineer, Motorola, Inc. from Pak Shem, Waste Compliance Unit, January 1, 1986.

6. Letter to Pak Sham, Waste Compliance Unit, ADHS, from Maurice Chiat, Manager, Environmental Compliance, Integrated Circuits Wafer Manufacturing Group, Motorola, Inc., February 24, 1986.

7. ADHS Office of Waste & Water Quality Management - Field Services Unit, Hazardous Waste Inspection Report, August 4, 1986.

8. ADHS letter to Maurice Chiat, Manager, Environmental Compliance, Motorola, Inc. from Pak Shem, Waste Compliance Unit, September 18, 1986.

9. Letter to Pak Sham, Hazardous Waste Compliance Unit, Office of Waste & Water Quality management, ADHS, from Maurice Chiat, Manager, Environmental Compliance, Integrated Circuits Wafer Manufacturing Group, Motorola, Inc., October 21, 1986.

10. Waste Analysis Plan - Price Road, Motorola, Inc. Date unknown.

11. Central Arizona Project Geology and Groundwater Resources Report, Maricopa and Pima Counties, Arizona, United States Department of the Interior, Bureau of Reclamation, Lower Colorado Region, Vol. 1, December 1976.

12. Contact report between Kathleen Yokota, E&E FIT and Harry Meyers, City of Tempe Water Production, December 11, 1987.

13. Arizona Department of Water Resources Well Registration Report for the Phoenix, Tempe, and Mesa Area, August 3, 1987.

14. Contact Report between Ara Mardirosian, E & E FIT, and Bob Smith, Arizona Department of Water Resources, October 14, 1987.

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PA/SI CONTACT LOG

Facility Name:
Facility ID:

Name	Affiliation	Phone #	Date	Information
Robert Henkel	Arizona Department of Water Resources	602/255-1586	10/20/86	He said that they had information on the site. He will get back to me about sending the information.
Simon Navarro	Arizona Department of Env. Quality	602/257-2335	10/23/86	He said that he had never heard of the site. He thought that the address might be wrong. It could, he said, be the Mesa plant on Dobbson (North of Broadway). He told me to call back John Davis at (602) 257-2393 to get further information on whether or not the site exists.
John Davis	AZDEQ	602/257-2393	10/23/87	He said that the Price Road plant does exist, but that they have no information on the site. He told me to call Al Rossler at (602) 257-2249, who handled RCRA sites such as Price Road.
Al Rossler	AZDEQ	602/257-2249	10/23/86	He said that the site is now closed and that their files on the plant have been transferred to the compliance section of the AZDEQ. He said to call them at (602) 257-2211.

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PA/SI CONTACT LOG

Facility Name:
Facility ID:

Name	Affiliation	Phone #	Date	Information
Robert Henkel	AZDWR	602/255-1586	10/26/86	No information.
Paksham Shem	AZDEQ	602/257-2211	10/26/86	He said that the files on the site were extensive and that I would need to go there to go through the files.
Lloyd Nelson	Soil Conservation Service - Phoenix	602/261-3058	11/4/87	See Contact Report.
Pak Shem	AZDEQ	602/257-2211	11/25/87	I called Mr. Shem to tell him that I would be by to got through the files on Tuesday, December 1.
Pak Shem	AZDEQ	602/257-2211	12/10/87	Still operating as a generator. State is not in investigating site anymore.
Tim Garvey	Salt River	602/236-2702	12/11/87	See Contact Report.

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CONTACT REPORT

AGENCY: Soil Conservation Service

ADDRESS: 3150 North 35th Avenue
Suite 7
Phoenix, AZ 85017

PERSON
CONTACTED: Lloyd Nelson

PHONE NO.: (602) 261-3058

FROM: Jeff Muller

TO: File

DATE: November 4, 1987

SUBJECT: Soil information on the site

cc: JJM

Lloyd said that the site is composed of Levine and Contine clay loams. The Levine clay loam has a 0-1% slope, is moderately alkaline, and contains some lime. The soil which extends to a depth of greater than 60" is a brown loam (0-14") and loamy brown (14" to 60"). The soil is moderately permeable and has a high water holding capacity.

The contine clay loam has a 0-1% slope, is alkaline and calcareous and has a low permeability and high water holding capacity. It is a reddish-brown clay (0-38") that passes into a light reddish-brown clay subsoil (38" - 60").

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CONTACT REPORT

AGENCY: City of Tempe Water Production

ADDRESS: PO Box 5002
Tempe, AZ 85286

PERSON CONTACTED: Harry Meyers

PHONE NO.: (602) 731-8207

FROM: Kathleen Yokota

TO: File

DATE: December 11, 1987

SUBJECT: Well owned by City of Tempe near 44th and Washington

cc:

The groundwater from the city of Tempe's well is co-mingled with Salt River Project Water. Approximately 5% of the groundwater is mixed with Salt River Project water. This mixed water is then distributed throughout the city of Tempe (approximately 141,000 residents).

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CONTACT REPORT

AGENCY: Salt River Project (SRP)

ADDRESS: PO Box 52025
Phoenix, AZ 85072-2025

PERSON CONTACTED: Tim Gorey

PHONE NO.: (602) 236-2702

FROM: Jeff Muller

TO: File

DATE: December 11, 1987

SUBJECT: Thickness of geologic units below the Price Road plant

cc:

The Upper Alluvial Unit base level elevation is 1000 feet above sea level. The thickness of this unit is 200 feet. The base of the Middle Fine Grained Unit is at 800 feet above sea level, the thickness of this unit is also 200 feet. The depth to the base of the Lower Conglomerate Unit (the interface of the Lower Conglomerate Unit and the crystalline structure) is 1200 feet below the land surface (not sea level).

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